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ABSTRACT

A study using multivariate analysis investigated how self-judged academic effort among Chicano college students is directly affected by academic self-efficacy. Also examined were the indirect effects of students' perceptions of the soundness of the evaluation system on self-judged academic effort, and the effects of school context on effort. A total of 508 female and 160 male Chicano students attending colleges in California answered a mail questionnaire in fall 1980 or in early 1981. The five colleges ranged in selectivity from an open-door admissions community college to a highly selective private university. Two four-year state colleges and a University of California campus were also included. Academic effort was indicated by the number of hours spent per week doing homework, while academic self-efficacy was determined by having students rate how well they were able to study, write reports, and perform in other academic tasks. Tentative support was found for the role of evaluations and feedback in affecting self-assessment of one's capacities. While there were no gender differences in reported academic efficacy, there was a direct and significant link between socioeconomic status and academic self-efficacy. (SW)

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# The Relationship of Chicano Students' Perceptions of the Soundness of Evaluations to Academic Self-efficacy and Academic Effort: A Test of a Path Analytic Model

by

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Abstract

The multivariate path model tested in this work evolved from a more expansive study of Chicano and Chicana students attending five college campuses that varied from a open-door admissions community college to a highly selective private university. The results demonstrate the relationship of students' perceptions of evaluations to academic self-efficacy and to academic effort. It also demonstrates how students' perceptions of evaluations and academic self-efficacy relate negatively to academic stress. The results point to strategies for organizational interventions designed to increase effort and performance and the chances for successful completion of college for nontraditional students. This study also documents the significantly higher level of academic stress among females compared to males in the sample.

## Importance of Academic Effort

Students must spend sufficient time in study to achieve desired academic goals. Such effectively directed effort does not occur independently of a sound evaluation and feedback system (Scott and Dornbusch, 1975). This study presents a multivariate model which shows how self-judged academic effort among Chicano college students is affected directly by academic self-efficacy. It also shows the indirect effects of student's perceptions of the soundness of the evaluation system on self-judged academic effort, and the effects of school context on effort.

Soundness of evaluations is the perception that one's self-judged level of effort and quality of work corresponds to the evaluation or grade received (Dornbusch and Scott, 1975; Natriello and Dornbusch, 1984). Another aspect of perceived soundness is the specificity of feedback, the level of detail contained in instructive comments on written work returned to the student. Academic self-efficacy is one's self-judged ability to perform specific academic tasks.

This work also shows significant gender differences in academic stress; females reporting higher stress. Academic stress is the self-reported intensity of stress relative to specific school situations.

This work makes several important and timely contributions to the understanding of academic effort among Chicano college students. Firstly, this work makes an important contribution to the understanding of academic effort among adult learners, in that it examines the relationship between perceptions of evaluations and academic self-

efficacy as they affect academic effort among college students. Secondly, this study focuses on college students; previous studies employing the perceived soundness construct have focused exclusively upon high school students. This study is a first attempt to test a causal model that has not been applied to college students. Thirdly, its focus on Chicano students enables a better understanding of how evaluations affect effort for an increasingly important segment of the total student population. Fourth, its focus upon gender differences within the framework of ethnicity is timely and important. It allows for comparison between Chicano male and females regarding academic efficacy, effort, and stress. Gender differences are a key personal factor which may affect effort. The possible link between gender and academic efficacy is extremely important in the case of the Hispanic, in that it is commonly believed that cultural background has influenced Hispanic womens' academic self-identity and aspirations (Vasquez, 1978; Duran, 1983). Finally, a clearer understanding of the effects of perceptions of evaluations on academic effort has important policy implications for administrators and instructors desiring to improve the linkage between evaluations and effort among college students.

In examining such academic effort among Chicano male and female college students in different school settings and from different social classes, this multivariate model extends previous findings from the high school to the college level. This should enable a better understanding of the personal and background factors that may ultimately mitigate prediction of college achievement (Duran, 1983).

Do Evaluations Matter?

A number of studies conducted at the secondary school level demonstrate that the perceived soundness of evaluations does affect effort. Dornbusch, Massey, and Scott (1975) and Fernandez, Dornbusch, and Espinosa (1975) conducted a series of studies among high school students who represented different ethnic groups. They found that students who did not view evaluations as soundly based on their effort or quality of work exerted less effort in class. Natriello and Dornbusch (1984) conducted a study of over 700 high school students in three different types of schools: an inner city school, a vocational technical school and a suburban middle class high school.

In their study, a direct link between evaluations and effort was not substantiated. Academic effort was affected by the importance one placed on school tasks. Academic effort was measured by self-judged frequency of cutting class, hours spent in homework per week, and attention in class. For example, when perceived soundness of evaluations was controlled, the relationship between importance and effort was improved in only 30 percent of the situations where evaluations were soundly based. Marram (1972) however, found that perceived soundness of evaluations did affect effort among nurses in a hospital. Interestingly, these researchers did not include a measure of the specificity of feedback as part of a sound evaluation system. Inasmuch as such feedback reflects the efforts one has put into a task, it is considered necessary among performers who care about the quality of their work (Scott and Dornbusch, 1975:95). The role of feedback in affecting effort is clarified in the present work.

Factors Affecting Instructor Evaluations

A number of studies at the high school show that minority and

disadvantaged students more frequently receive evaluations that are not soundly based on their efforts. Dornbusch, Massey, and Scott (1975) and Fernandez, Espinosa, and Dornbusch (1975) found that black and Hispanic students more frequently tended to view evaluations as not based on the quality of work or amount of effort exerted. Fernandez (1976) found the same perceptions among students from lower socioeconomic strata. Studies of teacher behavior (U.S. Civil Rights Commission Study, 1971) and Jackson and Cosca (1974) further substantiate that teachers demonstrate significant differences in evaluative behavior between Chicano and Anglo students. In these studies, teachers more frequently praised Anglo students and accepted their contributions. Rubovitz and Maehr (1973) report similar findings regarding black students.

Miller, et.al., (1968) demonstrate how social class affects teacher appraisals of student ability. They elicited impressions of student profiles representing different social classes from a sample of 38 junior and senior college students enrolled in teacher preparation classes. Subjects were presented with matched pairs of student case studies, comparable in terms of IQ and achievement, but of differing social class. In contrast to the middle class cases, lower class students were viewed as possessing lower math ability, reading fewer books, and completing fewer assignments. In fact, lower class students were seen as deficient in a variety of skills deemed critical for academic success. Whether or not such appraisals are internalized by students themselves is an important research question.

The School Context of Effort

The performance demand level can also impact academic effort.

Fernandez (1976) found when controlling for socioeconomic status, ethnic background, and grade point average, that the ability level of the respective high school had a positive effect on effort. School ability was the mean school score based on the aggregate scores of individuals' standardized achievement tests. Natriello and Dornbusch (1984) suggest that the higher the performance context, the more effort will be dedicated to school tasks. They further call for studies to substantiate that notion. Levine (1983) argues that exposure to higher performing comparison groups leads to higher motivation.

Self-efficacy and effort

A variety of studies underscore the role of self-referent thought as a mediator of action. Research applying the social learning model (Bandura, 1977,1982a,b) demonstrates that self-efficacy mediates between feedback and academic effort. Self-efficacy is one's self-judged ability to perform specific tasks (Bandura, 1982a,b). This construct is situationally specific and depends upon one's self-appraisal of ability with regard to a specific target task (Strecher, et.al., 1986). Schunk (1982,1983) conducted a series of experiments where children periodically received feedback regarding the quality of their effort and ability in completing mathematics tasks. Compared to controls who received no feedback, subjects in the experimental condition reported higher levels of self-efficacy and greater effort. Thus, feedback affected both self-efficacy and effort levels. Solomon (1984) showed that students who possessed high self-efficacy were more likely to exhibit greater effort, while others ceased their efforts when presented with a difficult learning task. Solomon measured effort using self-reported level of

concentration, understanding and "trying hard". Results of this study and others (Frieze, 1980; Weiner, 1977, 1979; Weiner, et.al, 1971) support the mediating role of academic self-efficacy.

Other studies show gender differences in attributions of academic skill, a construct related to self-efficacy. Deaux and Emswiller (1974) found that both male and female subjects perceived male students as more skillful than females, even when presented with cases that pictured both male and female stimulus persons as equal in competence. Powers-Alexander (1983) uncovered similar findings. Both female and male experimental subjects attributed successful males as more skillful than equally successful females. These findings suggest that females may internalize self-perceptions of low ability, while males, even if lacking skill, will attribute failure to lack of effort. While negative evaluations may be valid indicators of performance, females are more likely to give up their efforts, thinking that they do not have the requisite ability to perform a given task.

Efficacy and Stress

There is some evidence that high self-efficacy is antecedent to decreased stress. Bandura, Reese, and Adams (1982) found that when self-efficacy was experimentally induced through modelling and feedback, agoraphobics and snake phobics showed a significant decrease in visceral and reported stress, as well as better performance in tests that required subjects to approach snakes. It is not clear if decreased stress affects academic effort directly. Slem (1983) studying college students, found no correlation between reported levels of stress and class attendance as an indicator of effort. Munoz (1986) found that Chicano female students

showed higher levels of stress than either Chicano males or Anglo females, but that such stress was related to reported financial problems. Vasquez (1978) posited a link between environmental stress and persistence among Chicano females. However, this stress was not a significant predictor of persistence in college. A specific relationship between stress and either effort or self-efficacy was not explored in either the Vasquez or Munoz study. The inclusion of stress in an explanatory model of academic effort among Chicanos must be considered exploratory.

In summary, the literature substantiates that perceived soundness has an impact on academic effort and that perceived importance of academic goals leads to higher effort (Natriello and Dornbusch, 1984). However, findings are inconclusive with respect to a direct effect or an indirect effect via perceived importance of academic goals. Bandura's social learning model posits that feedback operates to produce higher self-efficacy, and that such self-efficacy is related to higher effort and lowered stress. Other background factors, such as gender and social class affect assessment of academic skill and perceptions of evaluations. The literature also documents higher stress among females, although it is not clear if such stress has a direct effect on effort.

## METHOD

### Hypotheses

In attempting to explain how academic effort is affected, the following hypotheses are tested:

1. Perceived soundness of evaluations will have a direct effect upon academic effort.

2. Perceived soundness of evaluations will have an indirect impact upon academic effort via its effects on perceived importance of academic goals, and academic self-efficacy. In order to be soundly based, evaluations must meet these conditions: first, the performer's efforts must be viewed as affecting the quality of performances or outcomes in such a manner that more or better effort produces outcomes viewed as more desirable; second, higher quality performances must be viewed as receiving higher evaluations. If these conditions are met, the efforts of the performer must be reflected in the evaluations received. Specificity of feedback is one indicator to the performer that his or her efforts have been assessed, hence, the need to include a measure of feedback within the definition of perceived soundness (Dornbusch and Scott, 1975:95). This work also includes the specificity of feedback as a component of a sound evaluation system. Information regarding the outcomes of effort is needed for effective future effort.

3. Academic self-efficacy will directly affect self-reported levels of academic stress. Academic self-efficacy is one's assessment of their ability to do specific school related tasks. Academic stress is self-reported intensity of stress that students experience relative to specific academic situations, such as being in a competitive environment, speaking up in class, receiving discouragement from instructors and not thinking they have the requisite ability.

4. Academic stress will negatively and directly affect academic effort.

5. School selectivity will have a direct effect on effort, higher demand settings having a favorable impact on effort. Higher levels of effort are expected at the selective private school.

6. Women will report significantly higher academic stress and lower levels of academic self-efficacy than male controls.

7. Higher levels of socioeconomic status will relate directly to higher academic self-efficacy and higher perceived soundness of evaluations.

The hypothesized model is pictured in Figure 1. Finally, no causal ordering is specified between the exogeneous variables: socioeconomic status, gender, and school selectivity. This designation follows the conventional specification recommended by Carmines (1986) and Kerlinger and Pedhazur (1973) for exogenous variables. Exogenous variables are assumed to be caused by factors outside of the model.

--FIGURE ONE ABOUT HERE--

Sample

Chicano males and females attending five different colleges varying in student selectivity answered a mail questionnaire in the fall of 1980 or after the beginning of the second semester in 1981. The five colleges were all located in California and ranged in selectivity from an open-door admissions community college to a highly selective private university. Midway between these two settings were two four year state colleges in the same state system and a University of California campus. One of the state colleges was located in a major metropolitan area, the other in a medium sized rural town. Freshmen, sophomores, juniors and seniors were sampled. The final sample used for analysis consisted of 508 women at five campuses and 160 men at three campuses. The overall sample response rate was 55.9 percent, obtained after two follow up reminder cards and three mailings of the questionnaire to two of the campuses. The study design was crossectional; items from the mail

questionnaire were employed as measures.

Measures

Academic effort- Effort was measured using a singular item requesting respondents to indicate how many hours they spent per week doing homework. The item is as follows:

How many hours per week do you spend doing homework?

1. less than 2; 2. two to six hours; 3. six to ten hours; 4. 11 to 15 hours; 5. more than 15 hours. This item was standardized to adjust for wide variations in the number of units taken at each campus. Adjustment was done by dividing the midpoint of each response category by the number of units the individual was taking. Because the uppermost interval did not have an upper limit, a midpoint was estimated by subtracting the total of reported hours in domestic chores, outside employment, outside social and political activities, on campus and off campus from the hours remaining in a week after accounting for sleep, meals, and one day of recreation. The sample mean value yielded by this estimation was substituted for the original score on the homework item.1

Soundness of evaluations- was measured with a three-item factor scale. For this measure, factor scores were assigned to individuals by assigning weights to individuals' original responses to the three items based on the respective factor coefficients. This scale assessed: 1) the frequency with which the student perceived that s/he received a good grade for "trying hard", i.e., putting out effort, and 2) the frequency with which the student perceived that s/he received a good grade for self-judged quality of work. The responses ranged from "never" to "always" on a 5-point Likert. The third item, assessing the specificity of feedback,

asked students to indicate what kind of evaluations they most frequently received for written work. Responses on the third item ranged from "nothing but a pass/fail" to "detailed and specific comments about the present work and directions for how to improve". The first two items were directly adapted from items used in other research testing the theory of evaluation (Fernandez, 1976; Natriello and Dornbusch, 1984; Marram, 1971;Dornbush, Massey, and Scott, 1975).2

Academic self-efficacy - was measured by a five-item cumulative scale asking students to self-assess how well they were able to study, give oral reports, write reports, read college level books, and communicate verbally with others in comparison with others at their school. Responses ranged from "poorly" to "excellent" on a 5-point scale. Alpha for this scale was .89, indicative of a highly consistent measure.

Academic stress- was measured by a factor scale 3 that assessed the intensity of stress experienced by such specific situations as "speaking up in class", "receiving discouragement from instructors about abilities", "being in a competitive environment", "not being prepared academically", and "having a loss of self-confidence". Responses ranged from "I have not experienced this" to "extremely stressful". Factor scale scores were computed by converting original responses to z scores, weighting these scores by the respective factor coefficients, then summing the weighted scores.

Perceived importance of academic goals- was measured by a singular item that asked students to rate the importance of graduation from college. Responses ranged from "not at all important" to "very important".

Background Variables

Socioeconomic status- was an index computed on the basis of fathers' occupation, fathers' education and mothers' education. Occupation was coded into six categories ranging from major professional and managerial to unskilled labor. Clerical, sales, and service occupations were coded into one category. Minor professionals, such as teachers, first line supervisors and small business owners were coded into a separate category, as were skilled and semi-skilled laborers. Occupational and educational attainment values were assigned in place of missing data. For example, when fathers' occupation was missing, the mean value of occupation was ascertained for others whose fathers had the same amount of education; this value was assigned to replace missing data 4.

## Results

Scale and item descriptive statistics by campus for academic effort, perceived soundness of evaluations, perceived importance of graduation, academic self-efficacy, academic stress, and socioeconomic status are presented in Table 1.

--TABLE ONE ABOUT HERE--

One way analysis of variance by school revealed significant differences in academic effort, socioeconomic status, stress, and perceived soundness by campus. The private university showed the highest effort score, but the lowest scores in perceived soundness of evaluations. Post-hoc analysis revealed that the private university was significantly higher in academic effort and lower in perceived soundness of evaluations than the rural state college. Other schools were not significantly different from each other, nor from the rural state. Because the private university was distinct, a dummy variable

representing the private university was constructed, other universities being the reference category. As expected, there were significant social class differences by campus, the private university showing the highest level of parental socioeconomic status. The private university also led in the highest level of academic stress. There were no differences in academic efficacy across campuses. Table 2 shows the results of that analysis.

--TABLE TWO ABOUT HERE--

There were no gender differences in reported academic efficacy, contrary to expected results (t=.30,ns). There was, however, a significant difference in mean level of academic stress, females reporting significantly more stress (t=-4.05; p less than .0001). Respective mean levels of reported academic stress were -.2482 for males (N=156) and .0896 for females (N=484). Sample sizes were lowered (N=640) due to listwise deletion of missing data. This finding is consistent with previous research (Munoz, 1986; Roberts and Roberts, 1982; Klerman and Weissman, 1980) that documents higher psychological distress among women. However, the relationship between academic self-efficacy and academic stress held equally for both sexes (r=-.41; p less than .0001 for males;r=-.38 p less than .0001 for females).

Table 3 presents the correlation matrix of variables originally proposed for construction of the path model. Academic effort was correlated significantly only with academic self-efficacy and socioeconomic status and with being at the private university. The hypotheses concerning the direct relationship between academic effort and perceived soundness and academic effort and importance of graduation were

not supported by the data. Perceived soundness correlated negatively with academic stress and positively with academic self-efficacy. Academic stress, as predicted, was significantly negatively correlated to academic self-efficacy. One noteworthy relationship, however, is the negative relationship between perceived soundness and academic stress, coupled with the findings of lower levels of perceived soundness and higher stress levels at the private university. Self-efficacy also correlated negatively with academic stress, but the hypothesized linkage between stress and effort was not substantiated by the data.

Contrary to the original hypothesis there was not a significant relationship between academic effort and perceived importance of academic goals.

----TABLE THREE ABOUT HERE---

Multivariate Analysis of Academic Effort

Based on the correlation matrix, the originally proposed model was abandoned in favor of the simpler model shown in Figure 2. 5 Because neither academic stress nor perceived importance of academic goals were linked to effort in the original zero-order correlations, they are not included in the path model. Multiple regression using backward elimination (Kerlinger and Pedhazur, 1973) of variables was employed to construct the revised model.

Regression equations for academic effort dependent, academic self-efficacy, and perceived soundness dependent with standard errors of beta, betas, unstandardized regression coefficients and R squared are presented in Tables 4.1 through 4.3. Changes in R squared and F levels after dropping the non-significant betas are also included. As apparent from

the regression results, the zero-correlation between socioeconomic status and effort, while significant, depends upon the link between social class and academic efficacy. The beta is nonsignificant for the regression of social class on the dependent variable. After excising the effects of socioeconomic status on academic effort,R squared is not affected by its removal from the equation, showing that its direct effects are nonexistent. The overall R squared, however, is very low (R squared= .01); very little variance is explained by the variables under test in the revised model. Other factors not accounted for have appreciable impact. The standard error of the equation approximates the standard deviation of the dependent variable, indicative of poor overall fit (Kerlinger and Pedhazur, 1973). Explanation of the variance in academic efficacy fared better, as the overall R squared equalled .14, both SES and perceived soundness showed relatively robust betas (.23 and .30 respectively). Both contributed significantly and directly to variation in academic efficacy. Perceived soundness of evaluations, while affected directly only by the presence of the private university school type, shows a very paltry R squared (.009). Even though it reached significance (F=6.55 p less than .01) less than one percent of the variance in perceived soundness is affected by the private university environment. The exclusion of socioeconomic status from the regression does not affect perceived soundness.

----TABLES 4.1 TO 4.3 ABOUT HERE----

One central feature of the simplified model is the direct relationship between academic self-efficacy and effort (B=.08), holding all other factors constant. Another important link exists between the private

university and level of effort, supporting the exploratory hypothesis that the school setting affects effort (B=.13). The importance of perceived soundness is evident by its effect on academic self-efficacy, holding other variables constant (B=.31). Another feature of the model is the direct and significant link between socioeconomic status and academic self-efficacy, holding all other factors constant (B=.26). The effects of socioeconomic status upon effort are entirely indirect, mediated by academic self-efficacy. The current model shows a satisfactory explanation of variation in academic self-efficacy, but fails to capture how perceived soundness is affected.

## Discussion of Findings

Measurement problems- The lack of correlation between perceived importance of academic goals and effort is most likely due to the poor quality of the importance measure. This singular measure showed extremely low variability. Future research should consider refinement of this measure to include a multiple measure that contains valid and reliable indicators of goal commitment. The outcome measure of effort is problematic in that it, too, was a singular item. Other items originally thought to measure effort actually were measuring some other underlying construct. Future research should consider breaking down homework behaviors into situationally specific task components and requesting that hours dedicated to each task be enumerated. Another possibility is to randomly select target students and observe classroom and other study behaviors to see which students take notes, do independent research, study together, discuss coursework with others, and like measures of task engagement. A college environment is much different from high school;

attendance and punctuality, while mandatory in high school, are not valid indicators of effort in a setting where one can perform well with independent task and time management. It is possible that a greater premium is placed on results and goals as opposed to compliance to schedules. This is most likely at the private university where work usually takes the form of major papers and tests at infrequent intervals; students can often miss class and negotiate work with the instructor without unduly affecting grade outcomes. In the high school, students are often measured using daily samples of work performance, hence, effort is indicated by timely preparation of assignments and regular attendance. Indeed, adult learning is commonly believed to be more results and instrumentally oriented (Knowles, 1970; Verduin, Miller, and Greer, 1977). Finally, reliance on self-reports of effort distorts the amount of effort actually expended. Better measures would come from direct observation or the reports of others.

Policy Implications in Light of Findings

The findings based on the revised model (Figure 2) present tentative support for the role of evaluations and feedback in affecting self-assessment of one's capacities, substantiating Bandura's social learning theory. The linkage between academic self-efficacy and effort is important, for it shows that if one's self-assessment can be altered, one's motivation to put out effort can be favorably affected. Through a sound evaluation and feedback process, one's perceptions and objective skill levels can be raised to facilitate more effective exercise of effort. The direct linkage between the private university and academic effort, holding all other variables constant, is interesting. It is not

known exactly what aspects of this setting, other than response to heavier workloads, could be contributing to higher effort. It is perplexing in the light of the lower perceived soundness and the fact that academic efficacy did not differ by campus. It may be that students are expending only enough effort necessary to survive in a very demanding setting and that further increases in perceived soundness would contribute to more effective effort aimed at improvement.

The inability to adequately account for variation in perceived soundness could be due to unmeasured variations in teaching methods or student-instructor interaction that have not been captured by the present measures. Examination of teacher classroom behavior would shed more light on how student characteristics affect instructor evaluations, and how the level of daily feedback and evaluation affect consequent effort.

The indirect effects of socioeconomic status on effort via academic self-efficacy are disturbing. The effort of students from lower socioeconomic backgrounds is unfavorably affected, especially if they are attending other than a "high demand" school. These social class effects operate independently of the school effects on effort, as academic self-efficacy did not differ by school. Social background is not as amenable to intervention as would be altering the evaluation system to bolster self-efficacy. Unless strong interventions take place before less advantaged students reach college, it may be very difficult to raise self-efficacy. While this study did not examine objective academic skill levels, it is worthwhile to strengthen university programs that bolster specific writing and reading skills. It is likely that the presumed effects of socioeconomic status are indicative of lesser academic

preparation for college in high schools serving less advantaged groups. One's objective skill level is a meaningful source of efficacy (Bandura, 1982).

The lack of differences between males and females in levels of self-efficacy is most likely reflective of the greater salience of socioeconomic status in the development of self-assessment among disadvantaged populations. Additionally, ethnicity may be a more important predictor of self-efficacy; unfortunately, the lack of an Anglo comparison group precluded testing this assumption.

Stress did not affect the amount of time these students were dedicating to homework. Students continued to put out effort despite experiencing the academic environment as stressful. The absence of a relationship between stress and effort does not, however, mitigate the human suffering involved. The presence of substantial levels of stress creates a need to consider policy aimed at student counseling programs. One such possibility is to teach students better time management strategies to cope with the anxiety produced in competitive environments such as the private university studied in this work. Another possibility is to work with faculty to plan coursework that paces the workload and provides opportunity to receive consistent and helpful feedback, along with realistic goals for student performance. The link between perceived soundness and stress coupled with lower levels of perceived soundness at the private university suggests that selective universities might consider programs specifically targeted at the process of giving feedback that will enable students to feel less anxious about the work environment. High stress among women necessitates future research to

uncover why women consistently experience more distress, in spite of equal levels of ability and effort.

Clearly, this work has made a modest contribution to the understanding of how one's efforts are affected by their perceptions of the evaluation system and their self-perceptions of ability. It has shown the unfortunate contribution of social background to one's self-efficacy. It has shown that perceptions of instructor evaluations and feedback affects one's self-perception and consequent motivation to exert effort. However, the inability to explain much of the variance in academic effort necessitates focusing on factors other than the perceived soundness of evaluations as antecedent to effort. An important factor contributing to academic effort is academic self-efficacy. Future research should focus on the mechanism by which self-efficacy relates to effort and subsequent achievement of Hispanics in college. The findings regarding gender and academic stress spur research in the area of sex differences in psychological distress and its long term effects on academic success. Hopefully, this research will aid policy makers to design educational programs and strategies with the less academically prepared student in mind. If we can boost students' beliefs about themselves, we have made a step in the right direction.

## NOTES

1. The original 5-point Likert type items designed to measure academic effort were submitted to factor analysis. Contrary to expected results from previous use of equivalent items to measure academic effort engagement (Natriello and Dornbusch, 1984; Fernandez, 1976) among high school students, two distinct dimensions emerged. The first appears as compliance to classroom norms of timeliness and attendance; the second appears as study habits relative to attentiveness to class lectures and reading assignments. The items loading heavily on the first factor were:

regularity of attendance, coming to class on time, turning in papers on time, and coming to class prepared with written assignments. The items loading heavily on the second factor were: daydreaming in class and coming to class with completed reading assignments. The hours per week doing homework measure did not load on either factor, lending tentative support to the conceptual distinctiveness between this measure and other types of classroom behavior among adult learners. In the college setting, attendance and timeliness are not universally mandatory, hence, compliance is voluntary. A truer measure of effort may be the self-directed time spent engaged in the process of doing homework. indeed, much research points to the salience of time on task as antecedent to achievement (Kareweit, 1983,1976; Bloom, 1976; Harnishfeger and Wiley, 1975; Carroll, 1963). Hence, time dedicated to homework tasks is an important process measure. Further work is needed in the development of reliable and valid indices of classroom effort among adult learners.

2.Converse items, also adapted from the aforementioned research, requested the student to respond to the frequency of poor grades as a result of "not trying hard" and poor quality of work. To confirm that the original items measured one underlying dimension, factor analysis was employed. This analysis revealed that these five items assessed two conceptually distinct latent factors, instead of two ends of a continuum. The first factor is a perception of correspondence between effort and reward,i.e. performances judged better are seen as receiving higher evaluations. This is consonant with the theoretical definition of perceived soundness. The theory of evaluation specifically states that soundness requires that performances considered better receive higher evaluations. (Scott and Dornbusch, 1975:343). The second factor appeared as a correspondence between absence of effort and sanction. According to Dornbusch and Scott (1975:95) performers who are committed to organizational goals may value evaluations more from a concern for the quality of their work rather than because of an association between evaluations and organizational sanctions. The specificity of feedback measure loaded on the same underlying factor as the positive soundness items, although more weakly. Only the first factor was retained for factor scale construction as it more closely corresponded to the original theoretical definition.

3.The original factor scale measuring academic stress was developed by Dr. Sharon Strover, of the University of Texas at Austin.

4.This index was developed by Drs. Maria Chacon, University of California at Berkeley, Elizabeth G. Cohen of Stanford University, and Dr. Sharon Strover, of the University of Texas at Austin.

5.When values for correlations were recomputed based on the significant paths, the observed vs. the expected correlations were equal, indicative of a correctly specified model. However, this is expected, given a simple model with only one direct path between an independent endogenous variable and its outcome. Other paths, when multiplied together, were

near zero. For this simple model rxy=pxy (Kerlinger and Pedhazur, 1973). Observed vs. expected correlations are as follows:

| | Observed | Model | Difference |
|---|---|---|---|
| Effort/acad. efficacy | .08 | .08 | .00 |
| Acad.effic./ perceived sound. | .31 | .31 | .00 |
| Acad.effic/ SES | .25 | .26 | .01 |
| Effort/School | .13 | .13 | .00 |
| Perc. sound./ School | -.09 | -.10 | .01 |

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FIGURE ONE
PATH MODEL DEPICTING HYPOTHESIZED ANTECEDENTS TO ACADEMIC EFFORT

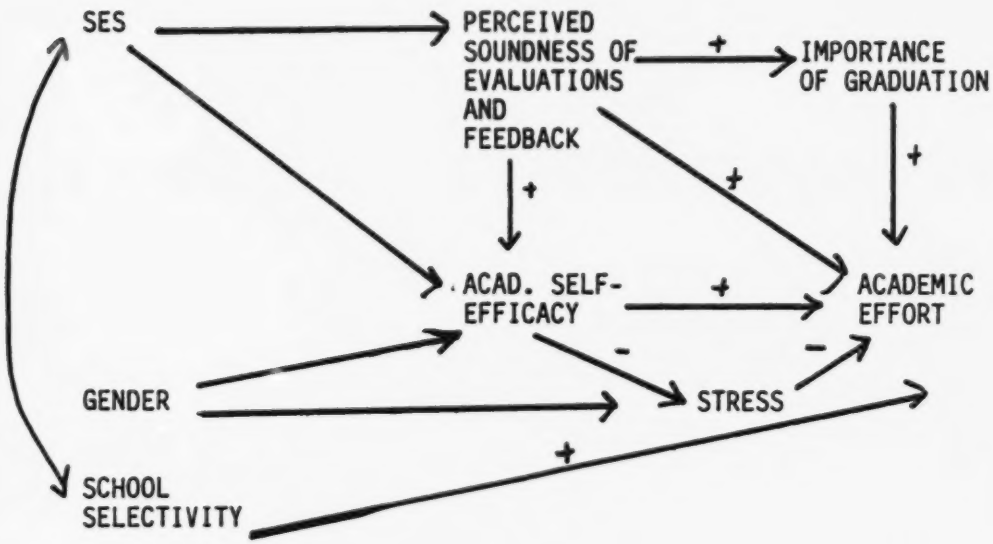

FIGURE 2

SIMPLIFIED MODEL: PREDICTORS OF ACADEMIC EFFORT

N=641

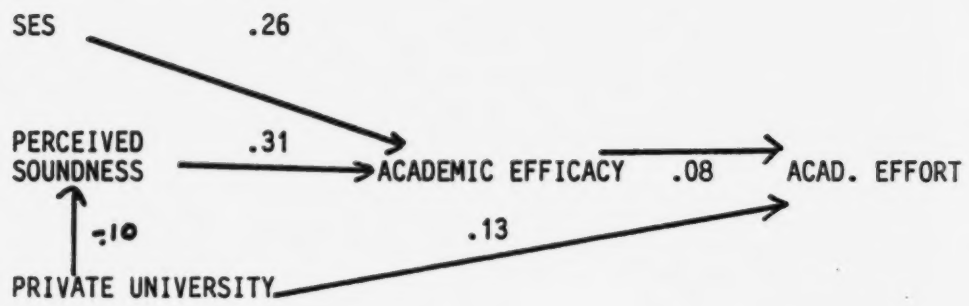

TABLE 1

DESCRIPTIVE STATISTICS FOR ORIGINALLY HYPOTHESIZED PREDICTOR AND OUTCOME VARIABLES BY CAMPUS AND TOTAL SAMPLE

| | PRIVATE UNIVERSITY | | URBAN STATE | | UC | | COMM COLL | | RURAL STATE | |
|---|---|---|---|---|---|---|---|---|---|---|
| | MEAN | S.D. | MEAN | S.D. | MEAN | S.D. | MEAN | S.D. | MEAN | S.D. |
| Effort (hrs/wk/ unit) | 1.25 | .59 | 1.18 | .86 | 1.14 | .69 | .97 | 1.06 | .89 | .61 |
| Sound-ness evals. | 6.03 | 1.13 | 6.25 | 1.05 | 6.04 | 1.03 | 6.33 | 1.01 | 6.39 | .97 |
| Acad. effic. | 18.23 | 4.19 | 17.79 | 4.18 | 18.37 | 3.82 | 17.36 | 4.30 | 18.39 | 3.50 |
| SES | 11.50 | 4.06 | 6.79 | 3.53 | 10.13 | 3.64 | 7.59 | 2.50 | 7.94 | 2.80 |
| Acad. stress | .19 | .898 | .04 | .94 | .315 | .86 | -.31 | .976 | -.13 | .89 |
| Impt. grad. | 4.81 | .56 | 4.79 | .60 | 4.90 | .36 | 4.60 | .81 | 4.88 | .61 |
| N | | 141 | | 93 | | 101 | | 124 | | 192 |

TABLE 2

ONE-WAY ANALYSIS OF VARIANCE BY CAMPUS FOR ORIGINALLY HYPOTHESIZED PREDICTOR AND OUTCOME VARIABLES

| | | |
|---|---|---|
| Effort (hrs/wk/unit) | F=5.79 | p less than .0001 |
| Soundness of evaluations | F=3.59 | p less than .01 |
| SES | F=35.18 | p less than .0001 |
| Academic efficacy | F=1.67 | ns |
| Academic stress | F=8.98 | p less than .0001 |
| Importance of graduation | F=5.79 | p less than .0001 |

TABLE 3
CORRELATION MATRIX OF ORIGINALLY HYPOTHESIZED PREDICTOR AND OUTCOME VARIABLES
PATH MODEL OF ACADEMIC EFFORT
N=665

| | Effort | Perc. sound. | Acad. effic. | SES | Impt. grad. | Acad. stress |
|---|---|---|---|---|---|---|
| Effort | 1.00 | .03 | .09** | .08* | -.01 | -.01 |
| Perc. soundness | | 1.00 | .30*** | -.02 | -.03 | -.37*** |
| Acad. efficacy | | | 1.00 | .23*** | .13*** | -.39*** |
| SES | | | | 1.00 | .07* | -.03 |
| Impt. graduation | | | | | 1.00 | -.03 |
| Acad. stress | | | | | | 1.00 |

(Correlations between dummy var. repres. private university and perceived soundness= -.09* and between private university and effort=.13*)

* p less than .05 ** p less than .01 *** p less than .001

TABLE 4.1
MULTIVARIATE REGRESSION ANALYSIS
PREDICTORS OF ACADEMIC EFFORT

| Predictors | Beta | SE Beta | B | SE B | t | p |
|---|---|---|---|---|---|---|
| Academic efficacy | .08 | .04 | .02 | .008 | 2.06 | .04 |
| SES | .02 | .04 | .003 | .009 | .36 | ns |
| Private school | .13 | .04 | .24 | .08 | 4.49 | .001 |

Multiple R .16 Adjusted R squared .02
R squared .03 Standard error R squared .75

F=5.48 p less than .001

SES removed:

F=8.16 p less than .0003
Change in R squared= -.0002

TABLE 4.2
MULTIVARIATE REGRESSION ANALYSIS
PREDICTORS OF ACADEMIC EFFICACY

| Predictors | Beta | SE Beta | B | SE B | t | p |
|---|---|---|---|---|---|---|
| Perceived soundness | .31 | .04 | 1.19 | .14 | 8.45 | .0001 |
| SES | .26 | .03 | .29 | .04 | 6.80 | .0001 |
| Private school | -.02 | .04 | -.22 | .38 | -.57 | ns |

Multiple R .398 Adjusted R squared .155
R squared .16 Standard error R squared 3.67
F=39.62 p less than .00001

Private School Removed:

F=59.33 p less than .00001
Change in R squared -.00044

TABLE 4.3
MULTIPLE REGRESSION ANALYSIS
PREDICTORS OF PERCEIVED SOUNDNESS OF EVALUATIONS

| Predictors | Beta | SE Beta | B | SE B | t | p |
|---|---|---|---|---|---|---|
| Private school | -.10 | .042 | -.26 | .106 | -2.47 | .01 |
| SES | .008 | .042 | .002 | .012 | .20 | ns |

Multiple R .10 Adjusted R squared .006
R squared .01 Standard error of R squared 1.04

F=3.26 p less than .05

SES removed:

F=6.48 p less than .01
Change in R squared = -.00006